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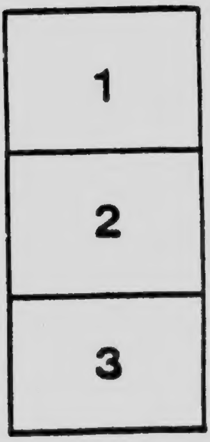

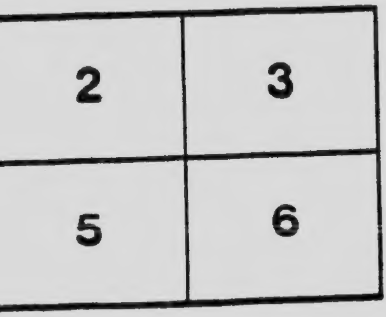

DEPARTMENT OF THE INTERIOR, CANADA
Hon. Frank Oliver, Minister; W. W. Cory, Deputy Minister
FORESTRY BRANCH—BULLETIN No. 21
R. H. Campbell, Director of Forestry

FOREST PRODUCTS OF CANADA

1910

POLES PURCHASED

COMPILED BY
H. R. MACMILLAN, B. S. A., M. F.
AND
W. GUY H. BOYCE

OTTAWA
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LETTER OF TRANSMITTAL.

FORESTRY BRANCH,
DEPT. OF THE INTERIOR, OTTAWA,

Sept. 1, 1911.

SIR,—

I beg to transmit herewith a report on the 'Poles Purchased' in the Dominion of Canada by telegraph, telephone and other companies during the calendar year 1910, and to recommend its publication as Bulletin No. 21 of this Branch.

The report gives the number and cost of the poles used during the year specified, classifying them by species and by length-classes, compares the prices of poles in Canada and the United States and also contains a short discussion of the possibility of treating the poles with creosote and other preservatives so as to increase their durability and of the saving that would be effected by such a treatment through the increase in the life of the poles so treated.

I have the honor to be, Sir,

Your obedient servant,

R. H. CAMPBELL,

Director of Forestry.

W. W. CORY, Esq., C.M.G.,
Deputy Minister of the Interior,
Ottawa.

POLES PURCHASED, 1910.

The statistics for the poles purchased during 1910 in Canada were obtained from the telephone, telegraph, electric light and power and electric and steam railways operating in Canada. Reports were secured from 559 companies, about 89 per cent. of the total number in operation. Electric light and power companies numbered 291, telephone companies 161, steam railway companies 62, electric railway companies 41, and telegraph companies four. Of these companies 283 operated in Ontario, 94 in Quebec, 39 in Nova Scotia, 35 in Saskatchewan, 27 in Alberta, 23 in New Brunswick, 23 in British Columbia, 17 in Manitoba, 10 in Prince Edward Island, and eight were United States companies operating in Canada.

Table 1 gives the number and cost of the poles of different species purchased by the above users in 1909 and 1910.

TABLE 1.

POLES PURCHASED 1909 and 1910: Number, Total Cost and Average Cost by Species and Chief Uses.

TOTAL OF ALL USES.

Kind of Wood	1909			1910		
	Number of Poles	Cost at Point of Purchase	Average Cost	Number of Poles	Cost at Point of Purchase	Average Cost
		$	$ c		$	$ c
Total	358,255	497,052	1 36	782,841	1,043,874	1 33
Cedar	332,366	464,433	1 38	758,209	1,002,513	1 32
Spruce	2,070	2,201	1 06	5,524	7,228	1 31
Chestnut	......	......	....	772	1,084	1 50
Larch	14,401	18,177	1 26	73	87	1 19
Douglas Fir	179	291	1 63	60	180	3 00
Unspecified	3,239	11,950	3 69	18,203	32,782	1 80

STEAM RAILWAYS, TELEPHONE, AND TELEGRAPH.

Kind of Wood	1909			1910		
	Number of Poles	Cost at Point of Purchase	Average Cost	Number of Poles	Cost at Point of Purchase	Average Cost
Total	340,194	[illegible]	1 29	744,387	891,899	1 18
Cedar	[illegible]	[illegible]	1 29	720,758	852,860	1 18
Spruce	1,955	[illegible]	1 05	5,026	5,847	1 16
Chestnut	......		....	340	350	1 03
Larch	14,391	[illegible]	1 26	60	60	1 00
Douglas Fir	99	141	1 42	......	......	....
Unspecified	2,084	[illegible]	4 21	18,203	32,782	1 80

ELECTRIC RAILWAYS, POWER AND LIGHT.

Kind of Wood	1909			1910		
	Number of Poles	Cost at Point of Purchase	Average Cost	Number of Poles	Cost at Point of Purchase	Average Cost
Total	18,061	[illegible]	[illegible] 97	38,454	151,975	3 98
Cedar	16,701	[illegible]	[illegible] 98	37,451	149,653	3 99
Spruce	115	[illegible]	1 26	498	1,381	2 77
Chestnut	......		..	432	734	1 69
Larch	10	[illegible]	3 00	13	27	2 08
Douglas Fir	80	[illegible]	1 87	60	180	3 00
Unspecified	1,155	[illegible]	2 67	......	......	....

The total number of wooden poles purchased in Canada during 1910 was 782,841. The gain over the number reported for 1909 was 434,586, or 118 per cent, due partly to the increased building of [illegible] railway and rural telephone lines. The total value at point of purchase was $1,043,874, which was an increase of $546,822 over the value in 1909. The average cost of poles was $1.39 in 1909 and $1.33 in 1910. The decrease of six cents was due to an increase in the use of short cedar poles by telephone and telegraph companies

Cedar is the wood most frequently used for poles in Canada, as it is practically the only Canadian wood growing to a convenient pole size which is cheap, easily handled and durable. There were 758,209 cedar poles purchased in Canada in 1910, or 99.2 per cent of the total. Spruce, furnishing 0.7 per cent. of the total, stands next in the list, having increased in use 175 per cent. over 1909. One-tenth of one per cent of the total is made up of chestnut, larch and Douglas fir.

The unspecified are, on the average, more expensive because a small proportion of them belong to high length-classes and may include some treated poles.

The use of larch has decreased from 14,401 poles in 1909 to 73 poles in 1910. The increased use of spruce accounts partially for this, but the difference is mostly due to the fact that a local telephone company building through a larch district in 1909 in the West used larch poles entirely, but did not build lines in 1910.

Chestnut, hitherto taken with unspecified, was this year separated. All chestnut poles are imported from the United States.

In 1909 pole users were classified under three headings: (1) Telephone and telegraph; (2) steam roads; (3) electric roads, power and light. It was found difficult to properly separate the first two, and in 1910 only two divisions are made: (1) railways, telephone and telegraph, and (2) electric roads, power and light. In 1910, as in previous years, the important class was that including the railway, telephone and telegraph companies, which purchased 744,387 poles or 95.1 per cent. of the total number reported. The use of poles by these companies was 119 per cent. greater in 1910 than in 1909, the increase being all in cedar.

This increase in the use of cedar is also seen in the consumption by electric roads, power and light companies, which used 113 per cent. more cedar in 1910 than in 1909. These companies bought 38,454 poles in 1910, or 4.9 per cent. of the total.

For the steam railway, telephone and telegraph companies the average cost of poles purchased in 1910 was $1.20 per pole; and for electric railway, power and light companies, $3.98. The difference in these average prices indicates the difference in the size or grade of the average poles suitable for the purposes of the two classes of companies.

TABLE 2.

POLES PURCHASED 1909 AND 1910, BY LENGTH CLASSES AND SPECIES. Number, Total Cost and Average Cost.

Kind of Wood	Total All Length Classes			20–25 Feet		
	Total Number	Cost at Point of Purchase	Average Cost	Total Number	Cost at Point of Purchase	Average Cost
		$	$ c		$	$ c
Total	782,841	1,043,874	1 32	484,181	510,665	1 04
Cedar	758,200	1,002,515	1 32	463,220	480,027	1 04
Spruce	5,524	7,228	1 31	3,468	4,628	1 33
Chestnut	772	1,084	1 40	420	423	1 01
Larch	73	87	1 19	73	87	1 19
Douglas Fir	60	180	3 00	......	......	....
Unspecified	18,203	32,782	1 74	17,000	25,500	1 50
	26–30 Feet			31–35 Feet		
Total	99,906	194,885	1 96	33,533	99,997	2 99
Cedar	98,081	191,959	1 96	32,729	99,582	3 05
Spruce	1,112	1,485	1 33	804	415	51
Chestnut	352	661	1 88	......	......	....
Larch	......	......	....	......	......	....
Douglas Fir	60	180	3 00	......	......	....
Unspecified	300	600	2 00	......	......	....
	36–40 Feet			41 Feet and Over		
Total	8,950	36,263	4 06	17,987	62,578	3 47
Cedar	8,950	36,263	4 06	16,944	55,196	3 26
Spruce	......	......	....	140	700	5 00
Chestnut	......	......	....	......	......	....
Larch	......	......	....	......	......	....
Douglas Fir	......	......	....	......	......	....
Unspecified	......	......	....	903	6,682	7 39

Table 2 gives the number, cost and average cost per pole of the poles purchased in 1910 by length and kind of wood.

In the shorter length-classes, as the 20-to-25-foot class, which composes 75 per cent. of the total number used, it is seen that chestnut is cheapest, then cedar, larch, spruce and Douglas fir. This in itself would explain the great popularity of cedar, for it gives for the money more service than any of the other native woods used.

The prices paid for poles range from $1.01 for chestnut poles 20 to 25 feet long to $7.39 paid for poles of unspecified species 41 feet and over. In general the value of poles advances very rapidly, though not proportionately, with increasing length. The one instance in the 31-to-35-foot class in which spruce poles were bought for 51 cents may be explained by the purchase of the poles in a locality of Nova Scotia where woods have comparatively low value.

Cedar poles appear in every length-class, and form the largest proportion. Spruce also is found in every class, but neither chestnut, larch nor Douglas fir were used over 30 feet in length.

Table 3 shows the comparative cost of cedar poles of approximately similar classes in Canada and the United States, 1909.

TABLE 3.

COMPARATIVE STATEMENT of Prices of Cedar Poles in Canada and United States, 1909.

CANADA.		UNITED STATES.	
Length	Cost per Pole	Length	Cost per Pole
Feet	$ c	Feet	$ c
20—25	1 02	20—24	82
26—30	1 90	25—29	1 50
31—35	3 15	30—34	3 18
36—40	3 99	35—39	5 14
41 and over	5 77	40—44	6 71
		45—49	8 06
		50—54	9 66
		55—59	11 00
		60 and over	14 09

In the thirty-foot class cedar poles are more expensive in Canada than in the United States. Above thirty feet they become cheaper. As seventy-five per cent. of the poles used in Canada are thirty feet or less in length, this means that companies using poles pay more for them, on the average, in Canada than in the United States. At present Canadian users are paying no attention to preservative methods, which in reality increases still more the relative cost. The pole-users of the United States, though paying less for their poles, treat them at a small extra expense, thus increasing the life of the pole and decreasing the yearly cost.

Table 4 shows the comparative cost of spruce poles of approximately similar classes in Canada and the United States in 1909.

TABLE 4.

COMPARATIVE STATEMENT of Prices of Spruce Poles in Canada and United States, 1909.

CANADA.		UNITED STATES.	
Length	Cost per Pole	Length	Cost per Pole
Feet	$ c	Feet	$ c
20—25	79	20—24	92
26—30	1 82	25—29	1 37
31—35	2 51	30—34	2 40
36—40	4 00	35—39	2 86
41 and over	5 00	40—44	4 36
		45—49	....
		50—54	....
		55—59	....
		60 and Over	6 50

Spruce poles cost more in Canada than in the United States in 1909, except in the 20-to-25-foot class. In this short length-class the cost is 13 cents less per pole in Canada. In the 26-to-30-foot class they cost 35 cents more in Canada than in the United States. In lengths of 31 to 40 feet and over, spruce poles cost from 11 cents to 64 cents more per pole in Canada.

In 1910 poles were exported to the United States and other countries to the value of $74,708. Imports into Canada consisted of 138,285 cedar poles worth $139,486, making an excess of imports over exports of $64,778. These imported cedar poles cost $1.00 per pole and belonged to the 20-to-25-foot length class.

PRESERVATION.

Poles, as at present used in Canada, receive no protection against decay in the parts in contact with the soil.* The result is that moisture is drawn into the pole, fungus growth is supported and the pole is useless in a short term of years. This unnecessary waste may be done away with and the cost per annum of a pole line may be decreased by treating the poles with certain preservatives. According to information obtained from the Forest Service* of the United States, 576,631 poles or 15.4 per cent. of the total used, received such treatment before use in 1909. In 1908, 10.6 per cent. received such treatment. This increase within a year of nearly 50 per cent. in the use of chemical preservatives shows that the experiment is successful and that it is making poles less expensive. As has been shown, 75 per cent. of the cedar poles used in Canada are from 20 to 40 cents per pole more expensive at the point of purchase than similar sizes in the United States. Evidently it pays United States pole-users to use preservatives with cheap poles. It would, therefore, pay Canada much more to lessen the annual cost of her more expensive poles by lengthening the life of the poles.

It requires from 175 to 200 years to produce the average cedar pole, which, if left unprotected, will rot and be useless in fourteen years. This species, forming 99.2 per cent. of the total number used, grows entirely in the southeastern part of Canada. At present the yearly consumption far exceeds the annual growth. Under the present methods of exploiting the forest, cedar will become commercially extinct in a few years. It is absolutely necessary that some method be adopted to avoid this catastrophe. The easiest means is to adopt the general use of preservative treatment to lengthen the life of cedar and to make other species, not naturally decay-resisting, available for pole use.

Untreated cedar poles, thirty feet long, cost, when the pole is in place, $7.00, and last on the average fourteen years. This is an annual cost of 71 cents per pole, allowing interest on a five per cent basis. By the creosote brush treatment, which consists in applying the preservative to the pole by hand with a brush, the cost of each pole is raised to $7.20. These poles have a life of seventeen years, making the annual cost 64 cents per pole, or reducing the cost seven cents per pole per annum. If the open-tank treatment is used, which consists in saturating the poles in alternate hot and cold preservative baths of creosote, the cost per pole is $8.05. These poles last 22 years, which makes the annual cost 61 cents per pole, or 10 cents less per pole than with untreated poles. The use of preservatives is both a saving of expense and a saving of the forests.

Spruce, though at present forming only 0.7 per cent. of the total (5,524 poles being used in 1909) should receive attention.

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*United States Forest Service Bulletin 84.

00925056

It is a tree which grows to useful pole size in 60 to 100 years, is cheap, light and easily handled. The reproduction of spruce is excellent. It occurs naturally over large areas in Canada, and, under present conditions of logging, is reproducing readily. It is adapted to many kinds of soil and the species is quickly propagated by seed. Untreated, the wood is not durable, but if treated it will last as long as the naturally durable and more expensive species used at present.

Preservative treatments will be of particular benefit to the lodgepole pine of the West, used chiefly for mining timbers and props. This species is of suitable pole size and occurs extensively on the mountain slopes of Alberta and British Columbia. As an untreated pole, it decays quickly in contact with the soil, lasting about five years. The tree grows tall and straight with very little taper and makes a well-shaped pole. Large quantities of this timber have been killed by fire. The dead trees are now standing thoroughly seasoned and in excellent condition for effective treatment. The sapwood is about an inch thick and is easily impregnated.

It would cost $1.40 per pole to treat by the tank method 35-foot poles of this species. Such a treatment would increase the life of the poles to 20 years, an increase of 300 per cent. over their present life.

The adoption of the preservative treatment of poles would result in a great saving to the pole-users of the prairie provinces. Cedar from Eastern Canada is now used almost exclusively for poles in the prairies, and because of the long freight haul is very expensive. Close to the pole-lines of Western Canada there are large quantities of lodgepole pine and spruce. Poles of these species may be treated and set for less cost than untreated cedar poles and will give greater service than untreated cedar poles. This is an opportunity for economy which should not be overlooked by companies erecting pole lines.

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